113*b* may be percentages of the full deformation of each of the particular regions **113***a* and **113***b*, where the sum of the percentage of deformation of the first and second particular regions **113***a* and **113***b* is 100%. In other words, the command may include undeforming the first particular region **113***a* to 25% of full deformation and deforming the second particular region **113***b* to 75% of the full deformation. This may provide a tactile experience to the user that is similar to pushing a mass from one location to another location, where there is a conservation of mass. Alternatively, the percentages may have a sum of greater than or less than 100%. For example, the command may include deforming each of the first and second particular regions **113***a* and **113***b* to 60% of full deformation. However, any other suitable command for the undeformation and deformation of the first and second particular regions **113***a* and **113***b* may be interpreted.

[0025] In the variation of the tactile interface layer **100** as described above, the fluid vessel **127** includes a first cavity **125***a* that corresponds to the first particular region **113***a* and a second cavity **125***b* that corresponds to the second particular region **113***b*. The displacement device **130** is preferably actuated to expand the second cavity **125***b* and retract the first cavity **125***a*. Retraction of the first cavity **125***a* (or the undeformation of the first particular region **113***a*) and the expansion of the second cavity **125***b* (or the deformation of the second particular region **113***b*) preferably happen substantially concurrently, as shown in FIG. **10**. In this variation, when the force and command are interpreted on the deformed first particular region, as shown in FIG. **10***a*, the volume of fluid within the first cavity **125***a* is decreased while the volume of fluid within the second cavity **125***b* is increased, as shown in FIG. **10***b*. A volume of fluid **112** may be transferred between the first and second cavities **125***a* and **125***b* by the displacement device **130**, but the displacement device **130** may alternatively displace any other suitable volume of fluid **112** from and to the first and second cavities **125***a* and **125***b*. For example, the displacement device **130** may displace a volume of fluid towards the first and second cavities **125***a* and **125***b* through the valve **139**, and the valve **139** directs a first portion of the fluid towards the first cavity **125***a* and a second portion of the fluid towards the second cavity **125***b*.

[0026] As described in the first preferred embodiment, a change in the volume of fluid within the first and second cavities **125***a* and **125***b* may also be thought of as a change in the firmness of the corresponding deformed particular region **113***a* and **113***b*, respectively. In a variation of the second preferred embodiment, the undeformation and deformation of the first and second particular regions **113***a* and **113***b* may alternatively be thought of as a decrease in firmness of the first particular region **113***a* and an increase in firmness of the second particular region **113***b*. An exemplary usage of this variation of the second preferred embodiment may be in a user interface that includes two buttons for increasing and decreasing a particular feature of the device, for example, the volume of sound output. The deformed first particular region **113***a* may represent the "increase volume" button and the second particular region **113***b* may represent the "decrease volume" button. As a force is detected on the first particular region **113***a*, the firmness of the first particular region **113***a* may be increased and the firmness of a second particular region **113** corresponding to a "decrease volume" button decreases, representing the shift towards the higher range along the range of available volume outputs. However, any other suitable application of this variation may be used.

[0027] In the method S**100** of the first and second preferred embodiments, the interpretation of the force detected on the deformed deformable region as a command may be adjusted based on the state of the deformed deformable region. For example, if a force is detected when the deformed deformable region is not fully deformed, the command may be to increase the firmness and if a force is detected when the deformed deformable region is fully deformed, the interpreted command may be to decrease the firmness. In a second example, the interpretation of a command when a force is detected as a deformable region is being expanded may be different from when a force is detected as a deformable region is being undeformed. However, any other suitable interpretation of the force as a command based on the state of the deformed deformable region may be used.

[0028] While the interpretation of a force detected on a deformed particular region **113** as a command is preferably one of the variations described above, the interpretation may alternatively be a combination of the variations described above or any other suitable combination of gestures and commands, for example, a force may be detected on an undeformed deformable region and then interpreted as a command for the deformable region. However, any other suitable type of force detection and force interpretation may be used.

[0029] As a person skilled in the art will recognize from the previous detailed description and from the figures and claims, modifications and changes can be made to the preferred embodiments of the invention without departing from the scope of this invention defined in the following claims.

We claim:

1. A method for actuating a tactile interface layer of a device that defines a surface with a deformable region, comprising the steps of:

deforming the deformable region of the surface into a formation tactilely distinguishable from the surface;

detecting a force from the user on the deformed deformable region of the surface;

interpreting the force on the deformable region as a command for the firmness of the deformed deformable region; and

manipulating the firmness of the deformable region of the surface based on the command.

2. The method of claim **1**, wherein the step of deforming a deformable region of the surface includes expanding the deformable region outward from the surface to form a raised portion of the surface that is tactilely distinguishable from the surface.

3. The method of claim **1**, wherein the step of interpreting the force on the deformable region as a command for the firmness of the deformed deformable region includes interpreting the force on the deformable region as a command for the degree of deformation for the deformed deformable region.

4. The method of claim **3**, wherein the step of interpreting the force on the deformable region as a command for the degree of deformation includes interpreting a size for the deformed deformable region.

5. The method of claim **1**, wherein the step of detecting a force from the user on the deformed deformable region of the surface includes detecting a force from the user that inwardly deforms the deformed deformable region of the surface.

6. The method of claim **1**, wherein the step of interpreting the force on the deformable region as a command includes